

claims is now expressly based on the total silica present in the matting agent component or matting agent composition.

Claims 1 and 20 have been further amended to further define the wax content of the matting agent component recited therein. The wax content is recited to be in the range of 18 to 30%. Support for these amendments is found on page 6, line 32. *15-30%*

Claims 6 and 7 have been amended to clarify preferred embodiments. Those claims now recite median particle sizes of 2 to about 6 microns. Support is found in original claims 5 and 6 in combination with disclosure on page 12, line 4. *2-5 μ 26+7*

Claims 32 and 33 have been amended to correct errors. It is clarified that the gloss recited in claim 32 was calculated as a gloss unit, not gloss efficiency as originally recited. This is apparent from Figure 1. The same clarification is made by the amendment to claim 33 and is apparent from Table 3, on page 11, and from Figure 7.

New claims 34 - 41 recite a preferred coating composition comprising acrylate-based radiation curable components. Support for these new claims is found on page 7, line 5, of the application and original claims 26-33.

Applicants also respectfully request reconsideration and withdrawal of the prior art based rejections stated in the June 19, 2001, Office Action in view of the above amendments and remarks below.

Briefly, Applicants have discovered a novel and inventive matting agent for radiation curable compositions. As described in the background section of Applicants' specification, radiation curable coating systems are increasingly used because they can be made with low VOC content. As these coatings are increasingly used, it is also becoming increasingly desirable to create coatings that have the same type of finishes prepared from traditional solvent or water-based coatings. Such finishes include matte finishes. However, matting agents used in the solvent and water based finishes rely on the solvent and water evaporating during drying. However, the low VOC content radiation curable systems have little or no solvent and therefore, little evaporation or film thickness shrinkage occurs upon drying. Conventional matting agents are hard particulates which rely upon that shrinkage in order to matte the finish. Several systems have been proposed for matting UV curable

coatings, but there is a need to improve ones being used today. It is submitted Applicants' invention provides such improvements.

Specifically, and as recited in claim 1, Applicants' invention comprises a matting agent composition comprising silica and wax wherein the composition has a median particle size in the range of 2 to 12 microns, a wax content in the range of about 18 to 30% by weight of the total silica composition. The silica has a pore volume in the range of about 0.8 to 1.4 cc/g. As mentioned in the background section of Applicants' specification, there have been attempts to reduce gloss in radiation curable coatings by using higher levels of matting agents. However, the more effective matting agents are highly porous and large volumes of these highly porous materials adversely affect the rheology of the coating. That adverse effect could be counteracted by lowering the pore volume of the matting agent, but then the efficiency of the matting is decreased. Applicants' invention, however, employs relatively high pore volume compositions without significant rheological problems associated with other matting agents. Preferred embodiments of Applicants' invention, those having median particle sizes in the range of 2 to about 6, are also relatively fine-sized and therefore does not possess the larger particle sizes of other agents that have been used to increase gloss reduction in radiation curable coatings. The larger particle sized products can adversely increase the surface roughness of the UV cured coating to an unacceptable degree. Finally, it has been shown that Applicants' invention appears to work in fast curing radiation curable systems including certain acrylate based systems which have been known to be difficult to matte. It is respectfully submitted that the prior art relied upon by the Examiner neither discloses nor suggests Applicants' invention as recited in the amended claims.

Specifically, claims 1, 3-6, 8, 20 and 22-32, have been rejected under 35 USC §102(e) as being anticipated by WO 98/58030. Applicants, however, respectfully request reconsideration. Applicants' claims now recite that the matting agent has a wax content in the range of about 18-30% by weight of the total silica composition, whereas the '030 PCT application only discloses matting agents containing wax in amounts up to 15% by weight of the silica. It is also stated in the Office Action that this rejection is based on a section of §102(e) that applies to patents granted on *an international application by another who has fulfilled the requirements of Paragraphs*

(1), (2) and (4) of §371(c). It is not seen where the above-mentioned requirements of §371(c) has been fulfilled by the Applicant in the '030 PCT application. Accordingly, it is submitted that based on the information from the face of WO 98/58030, this reference is not considered prior art under the section of §102(e) quoted in the Office Action.

Withdrawal of the §102(e) rejection is therefore requested.

Claims 1 - 10 have also been rejected under 35 USC §102(b) as anticipated by U.S. patent 5,326,395 to Aldcroft et al. Applicants, however, respectfully request reconsideration and withdrawal of that rejection. Claims 1-10 recite a matting agent composition comprising about 18-³⁰20% by weight wax and, a median particle size range of 2-12 microns. While the above-mentioned Aldcroft et al. patent discloses matting agent compositions having median particle sizes in the range of 5-9 microns, and wax content in the range of 5-20%, the examples indicate that when Aldcroft et al. prepare agents having median particle sizes of about 6, they only use wax amounts of at most 10% by weight. See Table III. Indeed, column 2, lines 42-45, suggest that best results are found when using wax contents in the range of 5-15%. Therefore, Aldcroft et al. do not expressly disclose the specific combination of wax amounts and particle sizes suggested by Applicants, and therefore do not anticipate Applicants' invention under §102. Applicants have also shown unexpected results for their compositions. Specifically, they have shown unexpected matting benefits when using such compositions as matting agents for UV curable coatings. See Tables 1 and 2. Applicants' invention shows better matting efficiency compared to a comparative example embraced in the broader ranges of Aldcroft. Applicants, therefore, respectfully request withdrawal of the §102 rejection based on Aldcroft et al., and submit that their compositions are patentable over Aldcroft's teachings.

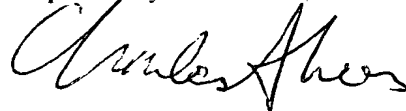
Claim 21 has been rejected under 35 USC §103(a) as being unpatentable over the earlier mentioned '030 PCT application further in view of Aldcroft et al. It is stated in the Office Action that the subject matter of claim 21 and the coating composition comprising a wax content of about 18-22 wt.% is suggested by the combination of those references. Applicants respectfully request reconsideration. As stated above, Applicants' invention has a wax content in the range of 18-30 wt%. The '030 PCT application, however, suggests matting agents containing at most 15 wt.%

wax. Aldcroft is no more suggestive for reasons discussed directly above. That is, Aldcroft does not suggest the unexpected benefits of the particular combination of matting agent properties in matting radiation curable coatings. Withdrawal of the rejection of claim 21 is requested.

Claims 1, 3-6, 8, 20, and 22-23, are rejected under 35 USC §103(a) as being unpatentable over WO 93/21240 in view of the aforementioned '030 PCT application. It is stated that U.S. patent 5,792,827 is relied upon as disclosing the same subject matter as the '240 PCT application. Reconsideration and withdrawal of this rejection is requested. It is submitted there is no motivation to combine the teachings of these references. The '827 U.S. patent discloses radiation curable coating compositions based on neutral acrylate oligomers. The matting agent described in the '030 PCT application, on the other hand, describes a matting agent paste for cationic curing compositions, and it is submitted that the system described in '827 U.S. patent is not such a system. Moreover, it is submitted even if these disclosures are combined, they would at best suggest making radiation curable compositions in which the matting agent would comprise at most 15 wt.% wax as described in the '030 PCT application. Applicants' invention recited in the above claims comprise at least 18% wax.

In view of the above amendments, it is submitted that Applicants' is now in condition for allowance and they respectfully request notification to that effect in the form of a Notice of Allowability.

Respectfully submitted,



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